UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/613,613	07/03/2003	Eric Feron	101328-0176	4360

21125 7590 04/14/2006

NUTTER MCCLENNEN & FISH LLP
WORLD TRADE CENTER WEST
155 SEAPORT BOULEVARD
BOSTON, MA 02210-2604

EXAMINER	
COOLMAN, VAUGHN	

ART UNIT	PAPER NUMBER
3618	

DATE MAILED: 04/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/613,613	FERON, ERIC	
	Examiner	Art Unit	
	Vaughn T. Coolman	3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) *1-10 and 19-41* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 July 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election of species I in the reply filed on 3/9/2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because:

A. Lines, numbers, and letters in FIGS 1-6 are not uniformly thick and well-defined.

B. Numbers and reference characters are not plain and legible (FIGS 1-6)

Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: y_s.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: b, c found in FIG 7.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

A. Numerous grammatical errors, for example:

1. Page 7, line 5 – "can to facilitate"

2. Page 7, line 8 – "can provides stability"

3. Page 8, line 8 – "wheel16" – no space

B. Page 7, paragraph 5, line 2 positively recites the phrase "secondary axes, 18A and 18B". Page 8, line 1 positively recites the phrase "secondary axels, 26A and 26B". These recitations are in direct contrast to the figures and to the later recitation on page 8, paragraph 3, lines 2-3 where the item associations are reversed. Examiner understands the secondary axes to be 26A and 26B, and the secondary axels to be 18A and 18B.

Appropriate correction is required.

Claim Objections

Claim 11 is objected to because of the following informalities: in the claim, applicant states that x_1 is in the direction of motion and x is defined relative to the earth such that when the object is at rest the coordinate x_1 matches x substantially. This seems to be in direct contrast to the figures and the specification. The specification states that x_1 is in the direction of the object body (page 9, last paragraph), or luggage container for the preferred embodiment, and that x is in the direction of motion relative to the earth. At rest, the figures would show x_1 being coincident with y, unless the wheeled object was resting on what one of ordinary skill would consider the back of the wheeled object, leaving the handle on the ground. In light of the specification, and considering that the remainder of the claims would be rendered incomprehensible by the applicant's coordinate system set forth in claim 11, it is best understood by the examiner that the coordinate system described in FIGS 7-11 and supported by the specification will be the basis for the treatment of the claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 recites that the Ψ angle is "chosen to restore stability if the object tips". The scope of the claim is indefinite due to there being no mention of what direction the tipping occurs in and what is meant by the term "stability". The scope is further confused by the fact that the wheeled object is tipped on purpose in order to effect movement of the wheeled object as shown in the figures.

Claim 12 recites the limitation "the luggage" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "the luggage" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "in the vicinity of 90- Φ degrees". The term "in the vicinity of" renders the scope of the claim indefinite.

Claim 13 recites the limitation of Φ being "the 'usual' pitch angle of the luggage [wheeled object] when towed by its user'. The scope of the claim is indefinite due to the variation in 'usual' pitch angles that vary depending on the size of the wheeled object, the height of the user, the type of terrain being traversed, etc.

Claim 13 introduces the angle ζ as an apparent "fudge factor" that has no basis in the specification. No advantage or reasoning for the choosing of the value of this angle or for its inclusion in equations governing the determination of the coordinate system is given. The various constraints relating to the wheel axel mentioned in the third paragraph of page 11 are not explained with any detail either.

Claim 14 recites the limitations "about 5 degrees" and "about 55 degrees". The term "about" renders the scope of the claim indefinite.

Claim 15 recites the limitations "about 10 degrees" and "about 40 degrees". The term "about" renders the scope of the claim indefinite.

Claims not mentioned above depend from a rejected base claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 11-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stanish (U.S. Patent No. 7,004,481 B1) in view of Bradfield (U.S. Patent No. 5,826,895).

[claim 11] Stanish discloses a passively stabilized wheeled object (10) comprising an object body (16); at least one primary wheel assembly (30, 39, 39') comprising two wheels (39, 39'), spaced apart from each other and mounted to the object body to rotate about a common axis (shown in FIG 1), the primary wheel assembly obviously capable of being defined by a first set of coordinates [attached to the object body] x_1, y_1, and z_1, wherein x_1 is in the direction of [the object body] motion, y_1 is [orthogonal to both x_1 and z_1] vertical and z_1 is the direction along the common axis of the primary wheel assembly and a second set of coordinates x, y and z defined relative to the earth, ["aligned with the direction of motion of the luggage and attached to the earth. The x coordinate points along the direction of motion. The y coordinate points upwards, and the z coordinate points across the direction of motion" (page 9, final paragraph of the instant application] such that when the object is at rest [vertically, as shown in FIGS 1 and 2 of Stanish],

the coordinates x, y and z substantially match x_1, $y_1$and z_1; and at least one secondary wheel assembly comprising at least two secondary wheels, disposed on opposite sides of, and spaced further apart than the wheels of the primary wheel assembly. Stanish does not disclose the secondary wheels being defined by a cant axis.

Bradfield teaches (see FIGS 7 and 8) a secondary wheel assembly (244, 250, 252) being disposed on opposite sides of, and spaced further apart than wheels of a primary wheel assembly (218, 242) wherein each of the secondary wheels (244) is further defined by a cant axis (not shown) which is substantially similar to the y axis [vertical] and an angle Ψ representing rotation about the cant axis relative to the x axis [longitudinal direction of the object body shown in FIG 7] (Column 5, lines 16-21), the Ψ angle thus defining the orientation of the secondary wheel (244) relative to a primary wheel (242) and being chosen to restore stability if the object tips (Column 2, lines 3-5). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the wheeled object shown by Stanish with the secondary wheel assembly configuration as taught by Bradfield, since such a modification would provide, according to Bradfield, the advantage of decreasing the turning radius when maneuvering the wheeled object (Column 5, lines 23-25).

Examiner notes that the above rejection is based on the claim limitations in light of the specification due to the discrepancies between the claim language and the specification of the instant application. In general, Stanish teaches the use of a secondary wheel assembly disposed outside of a primary wheel assembly to enhance stability of the wheeled object and prevent tip overs (Column 2, lines 55-57) and Bradfield teaches the canting of the secondary wheel

assembly about the vertical axis in order to enhance stability when turning, or tipping, the wheeled object.

[claim 12] The cant axis of the invention disclosed by the combination of Stanish and Bradfield can obviously be defined, or described by an angle ξ which is the angle between the coordinate axis x_1 [along the object body] and the cant axis [substantially similar to the vertical axis], and expressed in the coordinate system attached to the luggage [wheeled object] as follows:

$x_1 = \cos \xi$

$y_1 = \sin \xi$

$z_1 = 0.$

Examiner notes that the angle ξ would vary depending upon the angle that the wheeled object disclosed by Stanish is disposed at relative to the ground, or the x axis.

[claim 13] Examiner notes that for the cant axis to be substantially similar to the vertical axis, the angle ξ must be chosen in the vicinity of 90- Φ degrees, where Φ is the "usual" pitch angle of the luggage when towed by its user. The angle ξ could also be further defined as follows:

$x_1 = \cos \xi \cos \zeta$

$y_1 = \sin \xi \cos \zeta$

$z_1 = \sin \zeta,$

where ζ is a small angle less than 40 degrees in absolute value. Examiner notes that due to the fact that there is no reasonable explanation in the instant application of the introduction of the trigonometric properties of the angle ζ into the equations of claim 12, defining the angle ξ further

by doing so is arbitrary and would be obvious to one of ordinary skill in the art at the time the invention was made to introduce such a variable in order to make the equations fit an experimental curve or trend recorded during real life testing. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

[claims 14 and 15] Upon inspection of FIG 7, Bradfield further teaches the absolute value of Ψ being about 20-25 degrees. The apparent value of Ψ taught by Bradfield is within the range of about 5 degrees to about 55 degrees and also within the range of about 10 degrees to about 40 degrees.

[claims 16 and 17] Bradfield further teaches the secondary wheels (244) rotating about secondary axes and wherein the secondary axis of each of the secondary wheels is displaced vertically *and* laterally from the primary axis of a primary wheel (242, see FIGS 7 and 8). The combination would disclose the primary wheels of Stanish (39, 39') rotating about a primary axis and the secondary wheels taught by Bradfield (244) rotating about secondary axes, wherein the secondary axis of each of the secondary wheels is displaced vertically *and/or* laterally from the primary axis of the primary wheels.

[claim 18] Bradfield further teaches the diameter of each of the secondary wheels (244) being smaller than the diameter of the primary wheels (218 or 248). Examiner notes that wheel 248 of Bradfield is an alternative central [primary] wheel to wheel 242. Upon inspection the diameter of secondary wheels (244) is smaller than either diameters of primary wheels 218 or 248.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Edwards (U.S. Patent No. 6,877,752 B1) and Cohen (U.S. Patent Application Publication No. US 2003/0234501 A1) both teach wheeled objects including primary and secondary wheel assemblies wherein the diameters of the primary and secondary wheels are different.

Hambsch (U.S. Patent No. 5,855,385) teaches a wheeled object including primary and secondary wheel assemblies wherein the diameters of the primary and secondary wheels are different and the axis of rotation of the primary and secondary wheels are offset vertically and laterally.

Ellingsen Jr. (U.S. Patent No. 5,054,803), Smith et al (U.S. Patent No. 3,394,942), and Eisenmann II et al (U.S. Patent No. 6,331,012 B1) teach passive stabilization of wheeled objects.

Sadow (U.S. Patent No. 5,423,561) teaches the use of a secondary wheel assembly to stabilize a wheeled object.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vaughn T. Coolman whose telephone number is (571) 272-6014. The examiner can normally be reached on Monday thru Friday, 8am-6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Ellis can be reached on (571) 272-6914. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

04/08/06

Travis Coolman
Examiner
Art Unit 3618

vtc

CHRISTOPHER P. ELLIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600